

REMARKS/ARGUMENTS

The Abstract has been amended to shorten its length. In addition, minor typographical errors in the specification have been corrected.

Claim 20 has been amended to address the objection thereto because of the error in the spelling of the word electromagnetic. Claims 8 and 13 have been amended to positively recite the integrated circuit.

Regarding the Examiner's objections to the phrases "such that," "such as", "in such a way," in claims 1, 2, 5-7, 10, 15, 18 and 20-22 it is respectfully submitted that these objections are not well taken.

The Examiner cites MPEP § 2173.05(d) as support that these recitations render the claims indefinite. However, as is clear from MPEP § 2173.05(d), the objection is to language which imports into the specification examples or preferences. The language in Applicants' claims to which the Examiner objected is clearly not used in an exemplary fashion. For example, in claim 1, "such" modifies how a moveable part moves the items into and out of the antenna; in claim 2, "such as" modifies the function of the plurality of coils; in claim 5, "such a way" modifies how the coils are structured and arranged so as to reduce undesired electromagnetic noise; in claim 6, "such a way" modifies how the coils are structured and arranged to minimize electromagnetic radiation; in claim 7, "such that" modifies the arrangement of the compensation coils to provide magnetic fields which are insufficient to interrogate and read transponders outside the reading field; in claim 10, "such that" modifies how some of the coils are wound; in claim 15, "such that" modifies how some of the coils are wound; in claim 18, "such as" modifies the mounting of the three dimensional arrangement to provide a three dimensional reading field; in claim 20, the term "such a way" relates to how the coils are structured and arranged to reduce undesired electromagnetic noise; in claim 21, the phrase "such a way" relates to how the coils are structured and arranged to minimize electromagnetic radiation; and in claim 22, the phrase "such that" relates to how the compensation coils are arranged to provide magnetic fields which are sufficient to interrogate and read transponders outside the reading field.

Thus, in all instances, the use of the phrases “such that”, “such as” and “such a way” are clearly not used in a way in which they are reciting examples or preferences but, instead, are used to modify the elements to which they refer.

Finally, in this connection, the Examiner’s attention is respectfully directed to MPEP § 2173.02 which states “When the Examiner is satisfied that patentable subject matter is disclosed, and it is apparent to the Examiner that the claims are directed to such patentable subject matter, he or she should allow claims which define the patentable subject matter with a reasonable degree of particularity and distinctness” (emphasis in original). Applicants respectfully submit that their claims fully comply with this requirement for definiteness.

Reconsideration of the application in view of the foregoing amendments and following remarks is respectfully requested.

Claim 1 stands rejected under 35 U.S.C. § 102(b) as anticipated by Vega et al. (U.S. Patent No. 6,218,942). Applicants respectfully traverse this rejection.

The Examiner contends that Vega et al. discloses a three dimensional radio frequency antenna positioned on one side of a conveyor. However, the Examiner makes no reference to any specific part of Vega et al. that shows such an antenna. This is not surprising because Vega et al. does not have a three dimensional radio frequency antenna. Indeed, on page 5, lines 4-5 the Examiner seems to recognize this fact: “However, Vega et al. fail to teach that a plurality of coils mounted in a three dimensional arrangement.”

Further, Vega et al. does not disclose a moveable part of the conveyor for moving the items into and out of the antenna such that the items when in the conveyor are completely surrounded by the antenna. Although the Examiner refers to column 3, lines 48-57 of Vega et al., this section merely describes a fixed arrangement between the canopy assembly and the conveyor.

In view of the foregoing, Applicants respectfully submit that Vega et al. clearly does not anticipate claim 1.

Claim 13 stands rejected under 35 U.S.C. § 102(b) as anticipated by Brady et al. (U.S. Patent No. 6,201,474). Applicants respectfully traverse this rejection.

Applicants' claim 13 is directed to a radio frequency transponder which comprises, inter alia, a coil mounted on the substrate such as to be spaced therefrom, and an encapsulant which is enabled to completely surround the coil because of the spacing of the coil from the substrate.

No such arrangement is shown in Brady. Instead, in Brady the coil is formed on the substrate rather than being spaced therefrom. More specifically, the coil in Brady is formed from a layer of copper which is adhered or otherwise screened onto a substrate. Moreover, the encapsulant, although it encapsulates the substrate, does not completely surround the coil since the coil is connected directly to the substrate. In view of the foregoing, it is respectfully submitted that claim 13 is clearly not anticipated by Brady et al.

Claim 15 stands rejected under 35 U.S.C. 102(b) as anticipated by Geiszler et al. (U.S. Patent No. 5,565,846). Applicants respectfully transverse this rejection.

Claim 15 is directed to a three dimensional radio frequency antenna which comprises inter alia a plurality of cylindrical antenna coils arranged within one another in a nested relationship, some of the coils being wound such that horizontal magnetic fields with phase shift at 180° and 90° may be generated and others of the coils being wound such that vertical magnetic fields with phase shifts of 180° may be developed.

Geiszler et al. does not disclose a plurality of cylindrical antenna coils arranged within one another. To the extent that the coils 34, 42 and 44 of Geiszler can be considered cylindrical coils, it is clear that they are not mounted in a nested relationship but are mounted in a spaced linear relationship. See for example Fig. 6B and 6C and Fig. 8. In view of the foregoing, it is respectfully submitted that claim 15 is clearly patentable over Geiszler et al.

Claims 2-4 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Vega et al. in view of Brady et al.

Claims 2-4 and 8 are dependent either directly or indirectly from claim 1.

As discussed above, Vega fails to teach a three-dimensional radio frequency antenna nor teach that the conveyor has a moveable part for moving items into and out of the antenna such that the items when in are completely surrounded by the antenna.

The Examiner recognizes this deficiency of Vega and attempts to rectify it by citing Brady et al. Brady et al., however, does not disclose a three dimensional antenna; the only

antenna disclosed by Brady is an antenna in the RFID transponder and not an antenna for interrogating and reading information from the transponder.

Any teaching that may be suggested by Brady with respect to Vega would be with respect to modifying the Vega et al. RFID transponders. It is not seen how one skilled in the art would be led to apply the teachings of Brady to an interrogating antenna and, even if they did, how such teachings would suggest a three dimensional antenna or such an antenna comprised of a plurality of coils mounted in a three dimensional arrangement.

With respect to claim 3, the Examiner contends that it would be obvious from Brady to interrogate the transponder sequentially. However, this conclusion is drawn just because Brady may have capability of programming the Brady system to do this. However, there is no teaching in Brady that sequential interrogation is performed nor even that it is desirable to do so. Similarly with respect to claim 4, neither Vega nor Brady teach a quiet mode. However, the Examiner contends that because it would be possible to program Brady in such a fashion that somehow this teaches one skilled in the art not only the desirability of placing a transponder in a quiet mode after it has been identified but how to effect same. There is, however, no teaching or suggestion in Brady to do this.

With same to claim 8, the deficiencies of Brady in connection with the structure of a radio frequency transponder have been discussed above in connection with claim 13.

In view of the foregoing, it is respectfully submitted that claims 2-4 and 8 are clearly patentable over the combination of Vega et al. and Brady et al.

Claims 5-7 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Vega et al. in view of Brady et al. and further in view of Geiszler et al. Applicants respectfully traverse this rejection.

Claims 5-7 and 9 are dependent either directly or indirectly from claim 1 and are therefore distinguishable over Vega et al. for the reasons discussed in connection with claim 1.

The deficiencies of the combination of Vega et al. and Brady have been discussed in connection with claims 2-4.

Geiszler does not overcome any of the deficiencies of the combination of Vega and Brady. Accordingly, it is not seen how any one would be led to incorporate Geiszler into either

Vega et al., Brady et al. or the combination and, even if incorporated, how the combination of Vega et al., Brady et al. and Geiszler et al. would teach the combinations defined by claims 5-7 and 9.

With respect to claim 9, it is noted that Geiszler discloses an interrogating coil and indeed, the Examiner refers to the construction of the interrogating coils. There is no suggestion in Geiszler though that such teachings would have any benefits in connection with construction of an RFID transponder. In view of the foregoing, it is respectfully submitted that claims 5-7 and 9 are clearly patentable over the combination of Vega et al., Brady et al. and Geiszler et al.

Claim 10 stands rejected over 35 U.S.C. § 103(a) as being unpatentable over Vega et al. in view of Geiszler et al. Applicants respectfully traverse this rejection.

Claim 10 is dependent on claim 1 and accordingly distinguishes over Vega et al. for the reasons discussed above in connection with claim 1. There is no teaching at all in Geiszler that a plurality of cylindrical antenna coils should be arranged within one another in a nested relationship with some of the coils being wound such that horizontal magnetic fields with phase shifts at 180° and 90° may be generated and with other of the coils being wound such that vertical magnetic fields with phase shifts of 180° and 90° may be developed and that the coils are arranged such that a three-dimensional reading area is developed and noise suppression are developed at opposite ends of the reading area.. Although Geiszler does disclose coils having 180° phase shift, there is no teaching of forming vertical and horizontal fields in such a manner nor in arranging the coils such that the reading area is developed internally of the coils and that the object to be interrogated is interrogated within that reading area. As should be apparent from Geiszler et al., not only is a three-dimensional reading area not developed but the reading area is external to the coils.

In view of the foregoing it is respectfully that claim 10 is clearly patentable over the combination of Vega et al. in view of Geiszler et al.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vega et al. in view of Geiszler et al. and further in view of Yamada et al. Applicants respectfully traverse this rejection.

Claim 11 is dependent from claim 10 and is therefore patentable over Vega et al. and Geiszler et al. for the same reasons as claim 10. Yamada is cited as disclosing a nuclear magnetic resonance imaging of internal information of a target place in a homogeneous static magnetic field. There is no teaching in Yamada as to how this homogeneous static magnetic field is developed and, more specifically, no teaching that it is developed by using coils that have turns of unequal spacing. In view of the foregoing it is respectfully submitted that claim 11 is patentable over the combination of Vega et al., Geiszler et al. and Yamada et al.

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Brady et al. in view of Geiszler et al. Applicants respectfully traverse this rejection.

Claim 14 is dependent from claim 13. The deficiencies of Brady et al. with respect to claim 13 are as discussed above. The fact that Geiszler et al. is directed to the construction of an interrogating antenna rather than the construction of the RFID transponder has also been discussed. Further, it is not seen how the fact that Geiszler has spacing between coils to prevent interference has any bearing with respect to spacing between the coil and the substrate to enable the encapsulant to fully enclose the coil. In view of the foregoing, it is respectfully submitted that claim 14 is clearly patentable over the combination of Brady et al. and Geiszler et al.

Claim 18 stands rejected under 35 U.S.C. § 103(a) as being patentable over Geiszler et al. in view of Vega et al. Applicants respectfully traverse this rejection.

Claim 18 is dependent from claim 15. The differences between claim 15 and Geiszler have been fully discussed above. The Examiner recognizes that Geiszler fails to teach a plurality of coils mounted in a three-dimensional arrangement to develop a three-dimensional reading field. The Examiner also recognizes that Vega does not teach a plurality of coils mounted in a three-dimensional arrangement. See the Office Action, page 5, lines 4-5. It is necessarily follows, therefore, that the combination of Geiszler and Vega does not and cannot teach a plurality of coils mounted in a three-dimensional arrangement such as to provide a three-dimensional reading field in which all transponders in the field may be interrogated.

In view of the foregoing, it is respectfully submitted that claim 18 is clearly patentable over Geiszler in view of Vega et al.

Claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Geiszler et al. in view of Vega et al. and further in view of Yamada. Claim 16 is dependent on claim 18 and is therefore patentable over the combination of Geiszler et al. and Vega et al. for the same reasons. Further, the Examiner does not contend that Yamada teaches a plurality of coils mounted in a three-dimensional arrangement nor, in fact, does Yamada teach such an arrangement. Accordingly, it is not seen that Yamada overcomes any of the deficiencies of Geiszler and Vega. Further, as noted above, there is no disclosure or teaching in Yamada as to how the homogeneous static magnetic field is produced, let alone any teaching that it is produced by coils of unequal spacing.

In view of the foregoing, it is respectfully submitted that claim 16 is clearly patentable over the combination of Geiszler et al., Vega et al. and Yamada et al.

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Geiszler et al. in view of Vega et al. and further in view of Brady et al. Applicants respectfully traverse this rejection. Claim 19 is dependent from claim 18 and is therefore patentable over Geiszler and Vega for the same reasons.

In view of the foregoing, it is respectfully submitted that claim 19 is patentable over the combination of Geiszler et al., Vega et al. and Brady et al.

Claim 20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Geiszler et al. in view of Vega et al. and further in view of Arai et al. (U.S. Patent No. 6,184,693). Applicants respectfully traverse this rejection. Claim 20 is dependent from claim 18 and is therefore patentable over Geiszler et al. and Vega et al. for the same reasons.

Arai et al. does not disclose any of the features found lacking in Geiszler et al. or Vega et al. Further, although Arai et al. discloses an electromagnetic noise sensor, it is noted that claim 20 is directed to coils having 180° phase shift which are structurally arranged to reduce to undesired electromagnetic noise from affecting the reading field, rather than measuring electromagnetic noise. Arai neither discloses nor suggests any such arrangement.

In view of the foregoing, it is respectfully submitted that claim 20 is clearly patentable over the combination of Geiszler et al., Vega et al. and Arai et al.

Claims 21 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Geiszler et al. in view of Vega et al. and further in view of Geiszler et al. This rejection is not understood since the Examiner cites Geiszler twice. In any event, claims 21 and 22 are dependent from claim 18 and are patentable over Geiszler and Vega for the same reasons advanced above in connection therewith.

It is also not understood how Geiszler can be cited as both not teaching an antenna having two coils with magnetic fields having 180° phase shift (page 14, lines 14-16) and also as teaching two coils with magnetic fields having 180° phase shift (page 8, lines 5-7).

In view of the foregoing, it is respectfully submitted that claims 21 and 22 are clearly patentable over the combination of Geiszler et al., Vega et al. and Geiszler et al.

Applicants gratefully acknowledge the allowability of claims 12 and 17.

In view of the foregoing, this application is now believed to be in condition for allowance, which action is respectfully requested.

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Respectfully submitted,

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